



LV-E Series Installation Manual



Includes:

LV-E Series Fan Coils
Product Specifications

From the Manufacturers of
Hi-Velocity Systems™

www.hi-velocity.com

Module LVE - LV-E Series Fan Coil Installation 011610



Table of Contents

Setting up your LV-E System

Unit Selection	5
Unit Configuration	5
Quality Assurance	5

Fan Coil

Placement.....	5
Hanging Straps	5
Unit Configuration	6
Clearances.....	6

Water Cooling Module (WCM/WM)

Piping the WCM/WM.....	7
------------------------	---

Hot Water Coil Add-on

Piping the Hot Water Coil.....	7
--------------------------------	---

Electrical Strip Heater (ESH)

Wiring the ESH.....	8
---------------------	---

Return Air

Return Cutout Dimensions	8
--------------------------------	---

Return Air Base

Filter Rack.....

Filter.....

Hi-Velocity Air Purification System ...

User Guide

Indoor Air Quality.....	9
-------------------------	---

Filter Maintenance.....	9
-------------------------	---

System Efficiency/Performance	9
-------------------------------------	---

Installation Check List.....

Wiring/Printed Circuit Board

EPC Printed Circuit Board.....	10
EPC Wiring Diagram.....	11
Extended Wiring Diagram.....	12-13
EPC Circuit Board Pin Settings (Standard)	14
EPC Circuit Board Pin Settings (Metric)	15

Trouble Shooting

EPC Motor Not Running.....	16
24V	17
Low Air Flow	18
Outdoor Unit - Electrical.....	19

Appendix Pages

LV-E Fan Coil Specs (Standard)	Pg. 20
LV-E Fan Coil Specs (Metric)	Pg. 21
WCM Coil Specs	Pg. 22
Hot Water Coil Specs	Pg. 23
Electric Strip Coil Specs	Pg. 24
Hi-Velocity Air Purification System	Pg. 25
Quick Product Sizing Guide	Pg. 26
Warranty	Pg. 27

The LV-E System

By Energy Saving Products Ltd.

*All Product
Sizing on
Pg. 26*



LV-E Fancoil
Specs Pgs. 20-21

Heating Options



Hot Water Coil
Specs Pg. 23



Electric Strip Coil
Specs Pg. 24

Cooling Options



Water Coil Module
Specs Pg. 22

Other Options



Return Air
Pg. 8



Hi-Velocity Air Purification System
Specs Pg. 25

When sizing an LV-E fan coil for a residential system, it is necessary to have an accurate heat loss/gain done for the structure. This will ensure the proper equipment is used for cooling and heating. A heat loss/gain is done for each room, with all rooms added together to find the total BTUH load for the building. With the total load known, the appropriate fan coil can be chosen from **Pgs. 20 and 21**.

THE LV-E FAN COIL IS NOT TO BE USED AS TEMPORARY HEATING/COOLING DURING THE CONSTRUCTION OF THE STRUCTURE. IF USED IN THIS CAPACITY ALL WARRANTIES WILL BE NULL AND VOID.

Fan coil units specified in this section shall be designed as a closed loop hydronic fan coil system, with published BTUH ratings and entering water temperatures between 110°F and 190°F. The system shall allow for heating, TX or chilled water cooling, and heat pump applications with electric coil back-ups. Entering water temperature and BTUH outputs shall match performances listed on **Pgs. 20 and 21**.

QUALITY ASSURANCE

Fan coil units shall be a total indoor air quality system complete with heating, cooling and air filtration, with the possibility of humidity control and fresh air make up. The fan coil must be factory manufactured, assembled and tested.

All equipment furnished under this specification shall comply with the standards set out by the following standards organizations:

CSA	Canadian Standards Association
CE	European Conformity
UL	Underwriters Laboratories

The fan coil units shall be designed, rated, and approved by CSA/UL.

The fan coil units shall have pre-wired controls consisting of a 24V transformer and printed circuit board. The circuit board shall be capable of providing both heating and cooling. Motors shall be 115/220/50/60/1 with published amp draws.

Sweat water connections are 3/4" for the LV-E 1050 and 1" for the LV-E 1750. All lines should be piped so as not to restrict use of the access panels, filter section, or electrical enclosure.

Refer to the appendix pages at the back of this manual for all specifications, measurements, etc.

Fan coils are to be located indoors, however, attic, crawl space and garage conditions are fully acceptable. The fancoil unit can be positioned in a Horizontal, Hi-Boy, or Counterflow position and can be suspended from the ceiling or placed directly on the floor.

When potential for gravity flow of the hot water exists, spring check valves may be needed on both the supply and return lines.

PLEASE READ THE ENTIRE MANUAL BEFORE BEGINNING INSTALLATION AS THIS WILL HELP AVOID MISTAKES THAT MAY COST TIME AND MONEY.

DISCLAIMER

Energy Saving Products Ltd. reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. The descriptions and specifications contained in this manual were in effect at printing. Some illustrations may not be applicable to your unit.

FAN COILS

The LV-E fan coil is manufactured with a direct drive, permanently lubricated motor that is mounted within the blower. All LV-E fan coils are single side access. The blower assembly can be easily slid out by removing the electrical box and then removing the three mounting bolts that attach the blower to the center plate.

PLACEMENT

When installing the fan coil, keep these points in mind:

- Serviceability and access to the unit.
- Maximizing usable floor space.
- Location of heating/cooling source to the fan coil.

HANGING STRAP KIT

The Hanging Strap Kits are designed to suspend a horizontal or vertical fan coil. The nylon straps will absorb most of the vibration generated by the fan coil system, eliminating any sound transfer. The hanging strap kit is not recommended for the LV-E-1750.

As previously stated, the fancoil can be positioned in many different orientations. When placed in the Hi-Boy position, supply air is fed from the top of the unit. (**Fig. 01**) When placed in the Counterflow position, supply air is fed downwards from the unit. (**Fig. 02**)

Fig. 01 - Hi-Boy

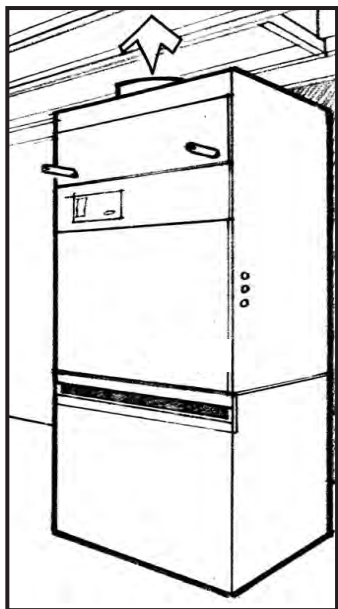


Fig. 02 - Counter flow

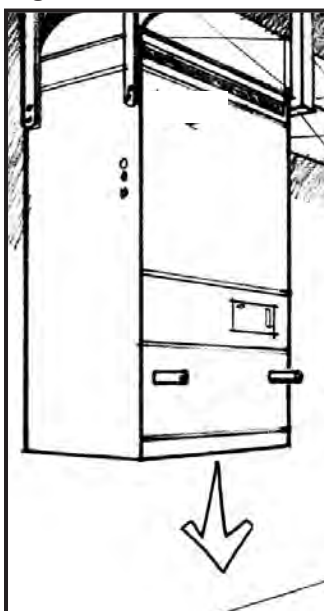
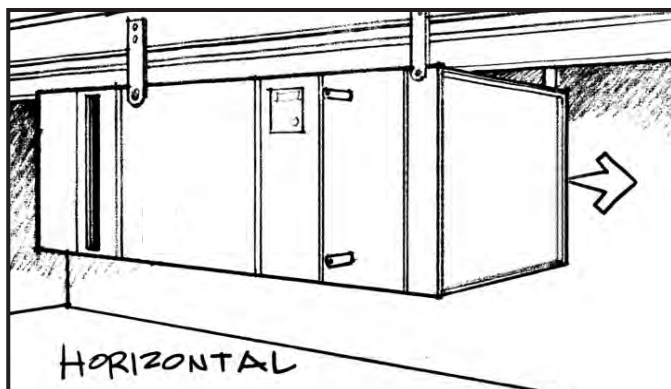


Fig. 03 - Horizontal installation



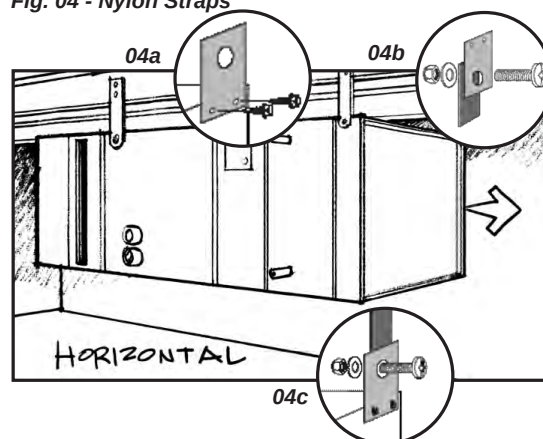
Quite often, the best location for the fan coil unit is suspended from the ceiling of the mechanical room, in the horizontal position (**Fig. 03**). This will allow for more floor space in the room, and will minimize the duct work needed to connect to the fan coil unit.

FANCOIL UNIT ONLY

Attach the metal flanges to the four facing corners of the fancoil unit (**Fig. 04a**).

The Nylon Straps need to be cut to the desired length (4" or more). Make a $\frac{1}{4}$ " hole 1" from the end of the nylon strap. Slide the $\frac{1}{4}$ " bolt into the hole of the metal flange then into the nylon strap, secure with washer and nut. Repeat this at each end of the nylon straps (**Fig. 04b - 04c**).

Fig. 04 - Nylon Straps



Secure the nylon straps to the joist or support, it may be necessary to install a support across the joists to properly fasten the Nylon Straps (**Fig. 05**). The Nylon Straps are always installed in a vertical position; they should never be installed at an angle. It is acceptable to put a 90° twist in the Nylon Straps (**Fig. 05a**), do not exceed 90°.

Fig. 05 - Support might be needed

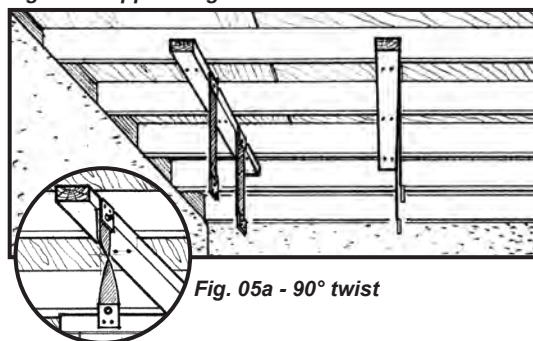


Fig. 05a - 90° twist

CLEARANCES

Clearance is only needed on the access side of the units. However, ensure that there is a small space between the unit and any other surface to prevent vibration transfer. In order to maintain and service the fan coil unit, the minimum clearances required on the access side are (**Table 01**).

Table 01 – Fan coil clearances

Unit	Inches
LV-E 1050	22"*
LV-E 1750	32"

*Add an additional 4" for Electric Strip Coils
(not available for the LV-E 1750)

REFRIGERANT COOLING MODULE

Due to the size of the RCM/RPM-E Cooling Modules and the high volume of air produced by the LV-E Fancoil Unit, the use of the RCM/RPM-E coils with the LV-E Fancoil is not advised. For refrigerant cooling needs, a third party blow through coil such as an A-Frame or N-Frame coil is suitable.

WATER COIL MODULE (WCM/WM)

The water coil comes as a module and must be installed in the vertical position on the return air side of the fan coil. The WCM/WM come supplied with two L mounting brackets for connection to the fan coil (**Fig. 06**). For WCM/WM dimensional information and sweat water connection sizes refer to **Pg. 22**.

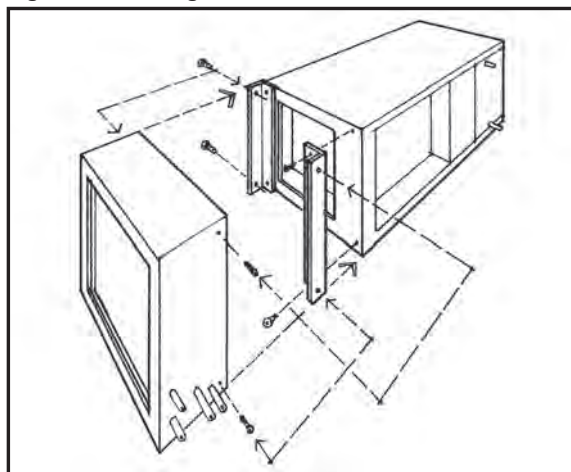
PIPING THE WCM/WM

When the potential for gravity flow of the hot water exists, check valves may be needed on both the supply and return lines. **Fig. 08 and 09** give an example of this. All lines should be piped so as not to restrict access to the front panels, filter section, or electrical enclosure. Size your supply and return lines according to **Table 02**.

Table 02 – WCM/WM pipe sizing

Zone BTUH Heat loss	Pipe Size up to 40 feet	Pipe Size 40 – 100 feet
0 - 35,000	5/8"	3/4"
35,001 - 70,000	3/4"	1"
70,001 - 140,000	1"	1 1/4"

Fig. 06 - Mounting Brackets



HOT WATER COIL ADD-ON

The Hot Water Coil Add-on is easily installed in the LV-E fan coil. With heating, condensate is not a consideration and the coil can be mounted on the supply side of the blower (**Fig. 07**).

With the removal of the front panels, the coil can be slid in place on the supply side of the blower. For Hot Water Coil dimensional information and sweat water connection sizes refer to **Pg. 23**.

PIPING THE HOT WATER COIL

Fig. 08 and 09 illustrate typical pipe runs from a dual purpose hot water tank to a fan coil. These drawings are only for reference as all piping has to be run according to local code.

Fig. 07 - Hot Water Coil easily slides into the fan coil

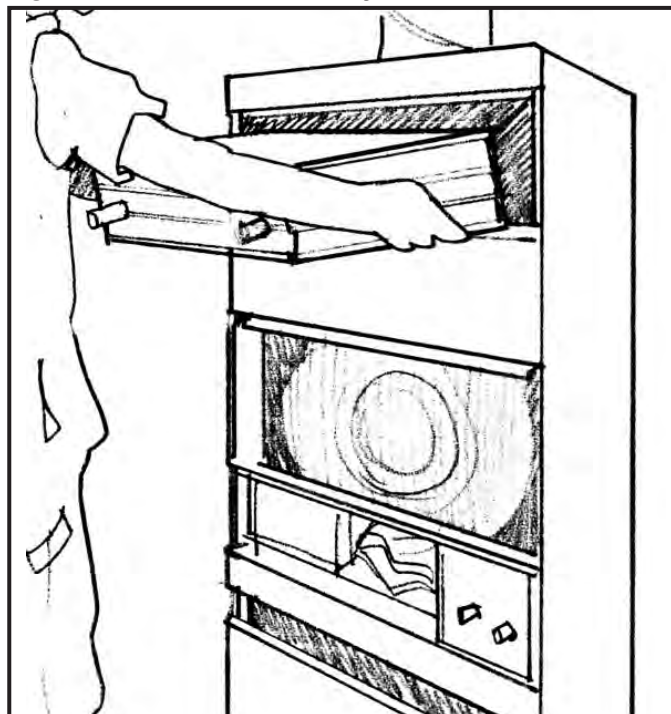


Fig. 08 - Hot water tank: Side take-offs

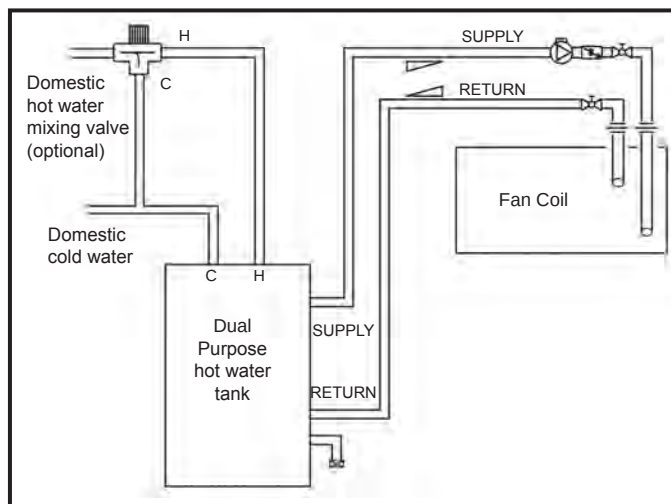
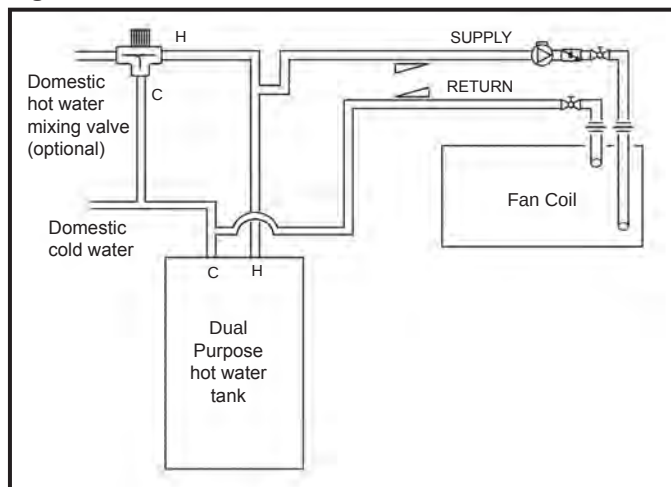


Fig. 09 - Hot water tank: Without side take-offs



ELECTRICAL STRIP HEATER (ESH)

The Electrical Strip Heater slides into the fan coil, on the supply side of the blower (**Fig. 07**). Once the front access doors have been removed, the ESH can be slid into place.

The ESH is labeled with a directional airflow sticker; when placing the ESH the sticker shall be in the direction of the air flow. Currently, the ESH is only available for use with the LV-E 1050

WIRING THE ELECTRICAL STRIP HEATER

Before wiring in the ESH, make sure all power sources are disconnected. The wiring diagram is on the inside of the ESH front panel, or refer to **Pg. 11**. Use only wires suitable for 167°F (75°C); wires shall be sized according to local electrical code.

Use only class 2 wiring for the Control Circuit connections between the heater terminal 1, terminal 2 and the zone valve terminals. Please note, the ESH must be wired to a dedicated breaker, separate from the fan coil.

Please see **Pg. 24** for Electrical Strip Heater Specifications.

RETURN AIR

The return air duct is not supplied with the LV-E Fancoil System. It is to be supplied and installed by the contractor. The return air and fresh air make-up ducts are to be installed according to local building code.

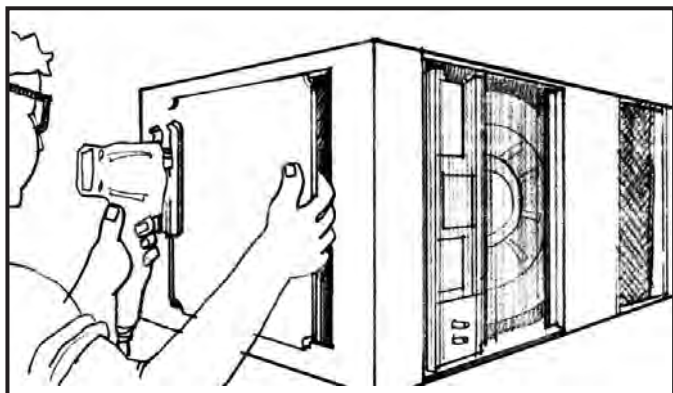
RETURN AIR CUTOUT

All LV-E fan coils are shipped with the return air knockouts pre-measured for multiple configurations. **Table 03** contains the pre-measured dimensions for the return air knockouts.

Table 03 – Return Air Cutout Dimensions

Model	Dimensions
LV-E 1050	14 ¹ / ₂ " X 13 ¹ / ₂ "
LV-E 1750	21" X 17 ⁷ / ₈ "

Fig. 10 - Return air cutout



Once the placement of the return has been decided, the return air knockout(s) can be marked and cut (**Fig. 10**). The pre-measured guide cuts supplied with the fan coil should always be used; this will guarantee maximum airflow across the coil.

RETURN AIR BASE (OPTIONAL)

Energy Saving Products manufactures a return air base with a built in filter rack that matches up to the fan coil units.

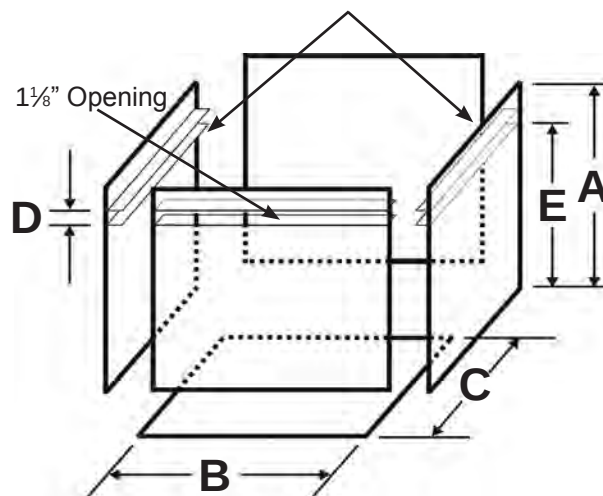
The return air base comes complete with a 1" filter and 1" filter rack. The filter is a 3 medium filter approximately 14% efficient, and can be replaced with any aftermarket filter. All Return Air bases come acoustically lined with half-inch sound absorbing insulation.

Table 04 – Return Air Base dimensions

	A	B	C	D	E
LV-E 1050	24"	18 ¹ / ₂ "	19 ¹ / ₂ "	1 ¹ / ₈ "	21 ³ / ₄ "
LV-E 1750	24"	24 ¹ / ₄ "	26 ¹ / ₂ "	1 ¹ / ₈ "	21 ³ / ₄ "

Fig. 11 – Return Air Design

Two 1¹/₈" Rails (D) for fan coil Placement and Filter Holder



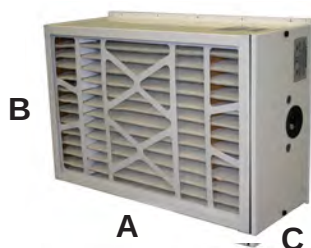
FILTER RACK (OPTIONAL)

Also available from Energy Saving Products is a 3" Filter Rack. Filters are 1 inch thick, 3 medium filters approximately 14% efficient. Any after market filter may be used with both the Hi-Velocity Return Air Base and Filter Rack.

Table 05– Filter Rack dimensions

	A	B	C	D
LV-E 1050	3"	18 ¹ / ₂ "	19 ¹ / ₂ "	1 ¹ / ₈ "
LV-E 1750	3"	24 ¹ / ₄ "	26 ¹ / ₂ "	1 ¹ / ₈ "

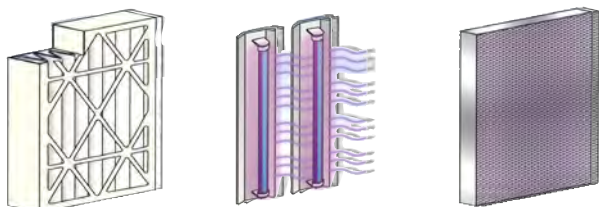
HI-VELOCITY AIR PURIFICATION SYSTEM



Designed for the Hi-Velocity System, the HE PS gives consumers unsurpassed indoor air quality. The HE PS will work at the airflow rates of the LV-E 1050 only. For 3 stage filtration on the LV-E 1750, we recommend using the HE PS 1750. See **Pg. 25** for specifications.

Table 06 –HE PS dimensions

	A	B	C
HE PS w/ Flange	25 ^{3/4"}	17 ^{3/4"}	10"



LV-E USER GUIDE

INDOOR AIR QUALITY (IAQ)

Ensure that there is always a filter in place and check every month to ensure that the filter is clean. The amount of time between filter changes and cleaning will be dependant upon the living habits of the homeowner. With a clean air filter, you not only have cleaner air to breathe, but you will also help maintain unit efficiency, as well as increase the operating life of the unit.

FILTER MAINTENANCE

The 1" 3 medium filters supplied by Energy Saving Products Ltd. can be cleaned and re-used. If the filter needs cleaning, the system should first be shut down and the filter removed. Once out of the unit, the filter can be vacuumed on the pink side and washed on the white side. Once the filter has been vacuumed, cleaned, and completely dried, it can be replaced in the unit. Note that the pink side of the filter faces the blower and the white side towards the return air. A filter can generally be cleaned a few times, if re-used too often it will restrict airflow.

SYSTEM EFFICIENCY/PERFORMANCE

A big misconception that people have is that by turning off the air conditioning when they leave home, they save on cooling costs. This is not necessarily true as the system will need to run longer and harder when pulling the house down to temperature after being shut off for a large amount of time. Keeping the temperature within a small range when there are no loads from human use will result in less overall energy consumption.

INSTALLATION CHECKLIST

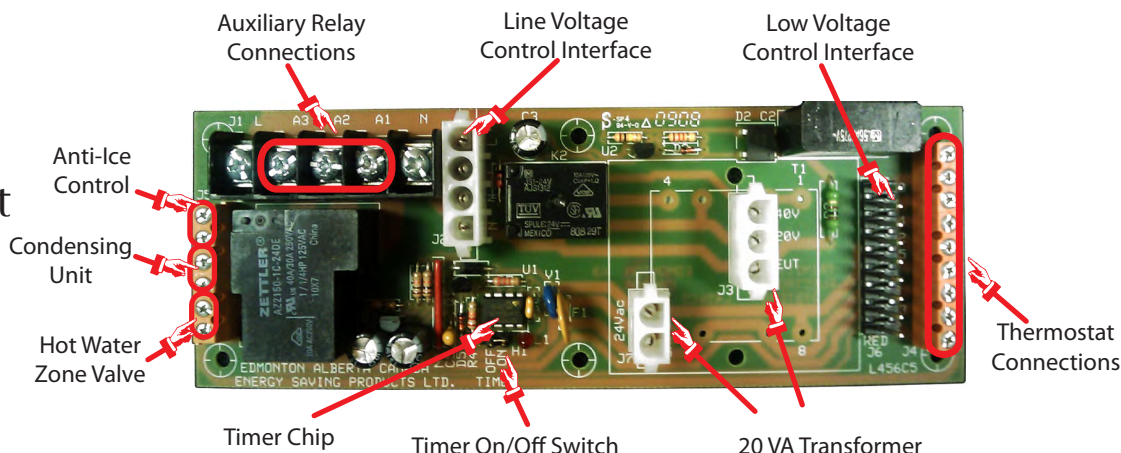
Ensure that all electrical connections are tight, and that any packing or shipping restraints are removed from both the fan coil, and the outdoor unit. With the power to the condensing unit off, check the thermostat for normal operation and proper airflow from all vents. Do not run the fan coil without a filter in place.

Observe the system pressures during the initial start-up and charging of the system. Refer to the outdoor or indoor coil manufacturer's charging guidelines. Check the voltage and amp draw of both the fan coil, and the outdoor unit. The voltages must be within 10% of the rating plate data. If more than 10% is noted, contact your local electrical company. Check that the amp draws of both units are within the information printed on the unit rating plates.

IN THE EVENT OF DIFFICULTY DURING THE START-UP PROCEDURE, PLEASE REFER TO THE TROUBLE SHOOTING FLOW CHARTS (Pgs. 16-19) TO ASSIST YOU IN DETERMINING THE PROBLEM.

EPC CIRCUIT BOARD/CONTROL BOARD

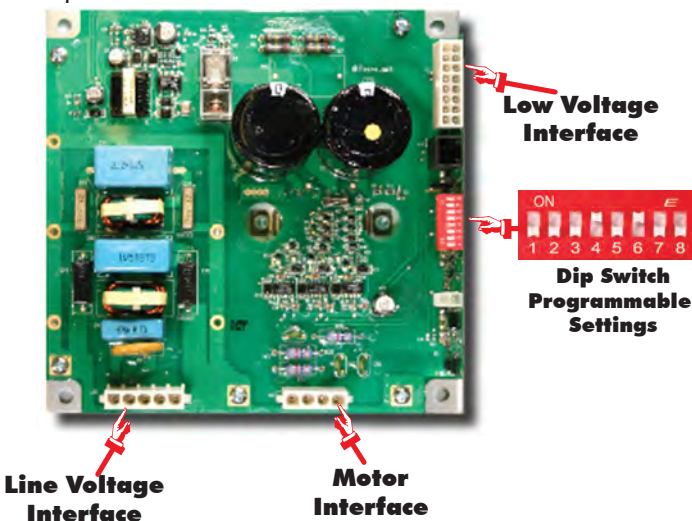
EPC Circuit Board



Energy Saving Products Ltd. now utilizes automatic voltage and frequency recognition circuitry designed for the national and international market. This unique feature will automatically recognize and adjust to the voltage and frequency input. It doesn't matter if it is 115 or 230 volt, 50 or 60 cycle, our electronics will adjust to the input automatically.

The Circulator Timer Chip on our circuit board will energize the pump for 5 minutes every 24 hours. This timing cycle starts when power is turned on to the fan coil unit, and will be engaged at the same time every day. If you wish to have the timer cycle operate at a specific time of day, simply turn off power to the fan coil unit for three seconds at that time, and then turn the power back on. If you do not need to use the timer circuit, move the jumper header from the ON pins to the OFF pins and it will be disabled.

EPC Control Board



UNIT CONFIGURATION

The LV-E unit utilizes mass flow technology and will attempt to provide constant air delivery throughout the programming range. Whereas a conventional motor would slowly lose airflow due to a condition such as a dirty filter, the EPC Motor and mass flow program will attempt to maintain proper airflow rates through such a condition. This is achieved through control of the voltage and frequency of power provided to the motor. The LV-E System is field programmable from 1.5 to 5 tons of cooling with the use of an adjustable control board, with the tonnage being set by the 8 pins on board. See the Dip Switch Control graphic for reference. Detailed information on pin settings is supplied on [Page 14](#).

Dip Switch Control:



(Factory Setting, set for 1.5 tons)

Each programmed tonnage will have up to 5 adjustments for on-site fine tuning which is changed using pins 6, 7 and 8.

LV-E FAN COIL - EPC WIRING DIAGRAM

This wiring diagram is included on all of the LV-E models. The power inputs as well as the various connection terminals are identified, helping you to quickly wire in the required devices.

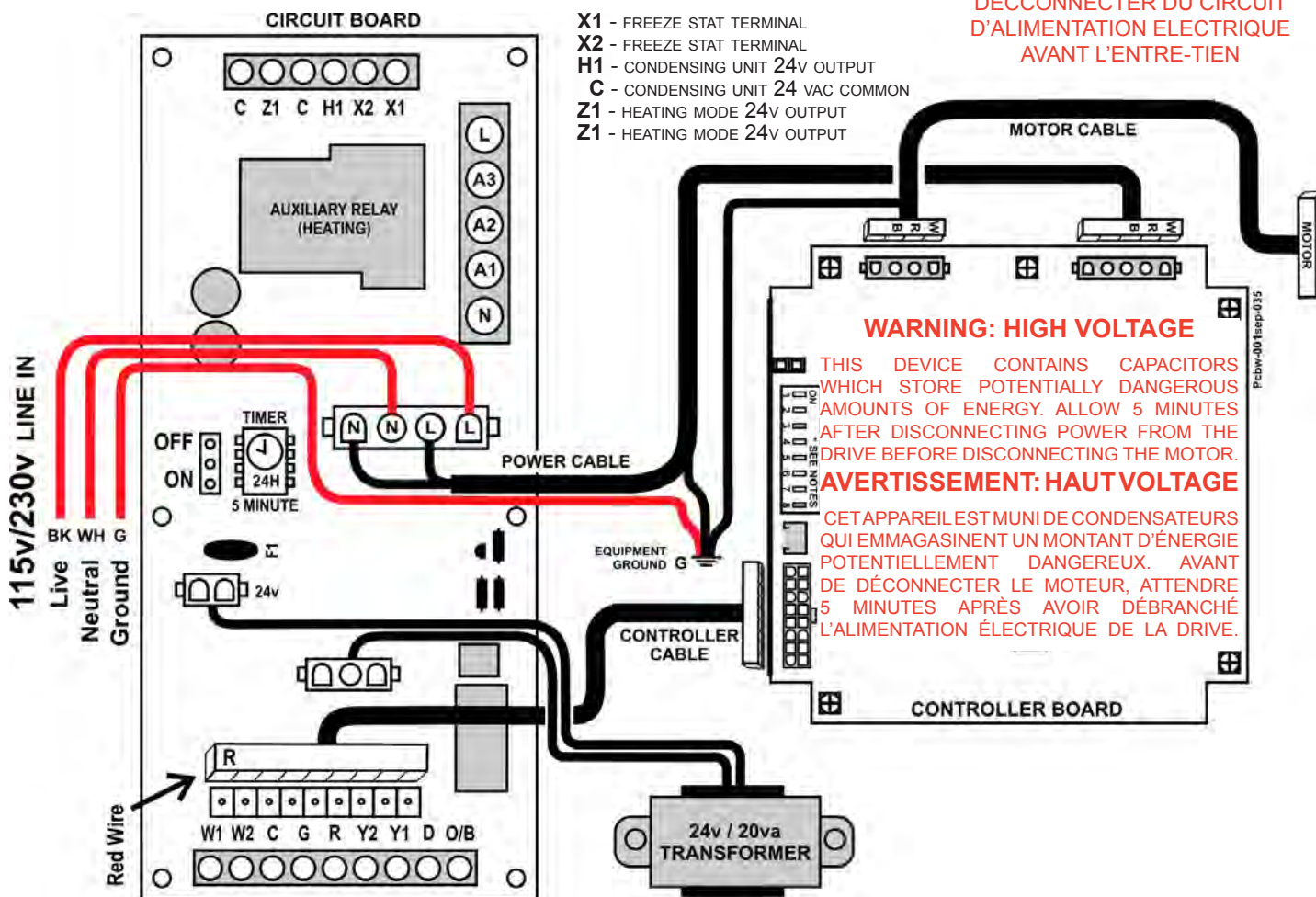
FOR SINGLE STAGE OPERATION USE W2 & Y2 TERMINALS

N - NEUTRAL
L - LINE VOLTAGE
A1 - AUXILIARY NORMALLY OPEN
A2 - AUXILIARY NORMALLY CLOSED
A3 - AUXILIARY COMMON

X1 - FREEZE STAT TERMINAL
X2 - FREEZE STAT TERMINAL
H1 - CONDENSING UNIT 24V OUTPUT
C - CONDENSING UNIT 24 VAC COMMON
Z1 - HEATING MODE 24V OUTPUT
Z1 - HEATING MODE 24V OUTPUT

CAUTION
DISCONNECT THE ELECTRIC
POWER BEFORE SERVICING

ATTENTION
DECONNECTER DU CIRCUIT
D'ALIMENTATION ELECTRIQUE
AVANT L'ENTRE-TIEN



WARNING: HIGH VOLTAGE

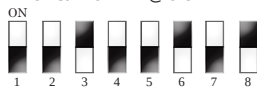
THIS DEVICE CONTAINS CAPACITORS WHICH STORE POTENTIALLY DANGEROUS AMOUNTS OF ENERGY. ALLOW 5 MINUTES AFTER DISCONNECTING POWER FROM THE DRIVE BEFORE DISCONNECTING THE MOTOR.

AVERTISSEMENT: HAUT VOLTAGE

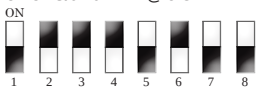
CET APPAREIL EST MUNI DE CONDENSATEURS QUI EMMAGASINENT UN MONTANT D'ÉNERGIE POTENTIELLEMENT DANGEREUX. AVANT DE DÉCONNECTER LE MOTEUR, ATTENDRE 5 MINUTES APRÈS AVOIR DÉBRANCHÉ L'ALIMENTATION ÉLECTRIQUE DE LA DRIVE.

MINIMUM FACTORY DIP SETTINGS BLACK IS DIP SWITCH SETTING

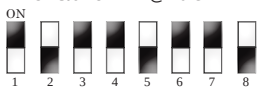
LV-E 1050 400 CFM/TON
2 TONS/47.5 MBH @ 5 GPM



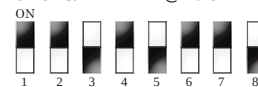
LV-E 1050 400 CFM/TON
3 TONS/64.6 MBH @ 5 GPM



LV-E 1750 400 CFM/TON
4 TONS/94.3 MBH @ 10 GPM



LV-E 1750 350 CFM/TON
5 TONS/112.1 MBH @ 10 GPM



Heating Ratings Based Upon 160°F EWT

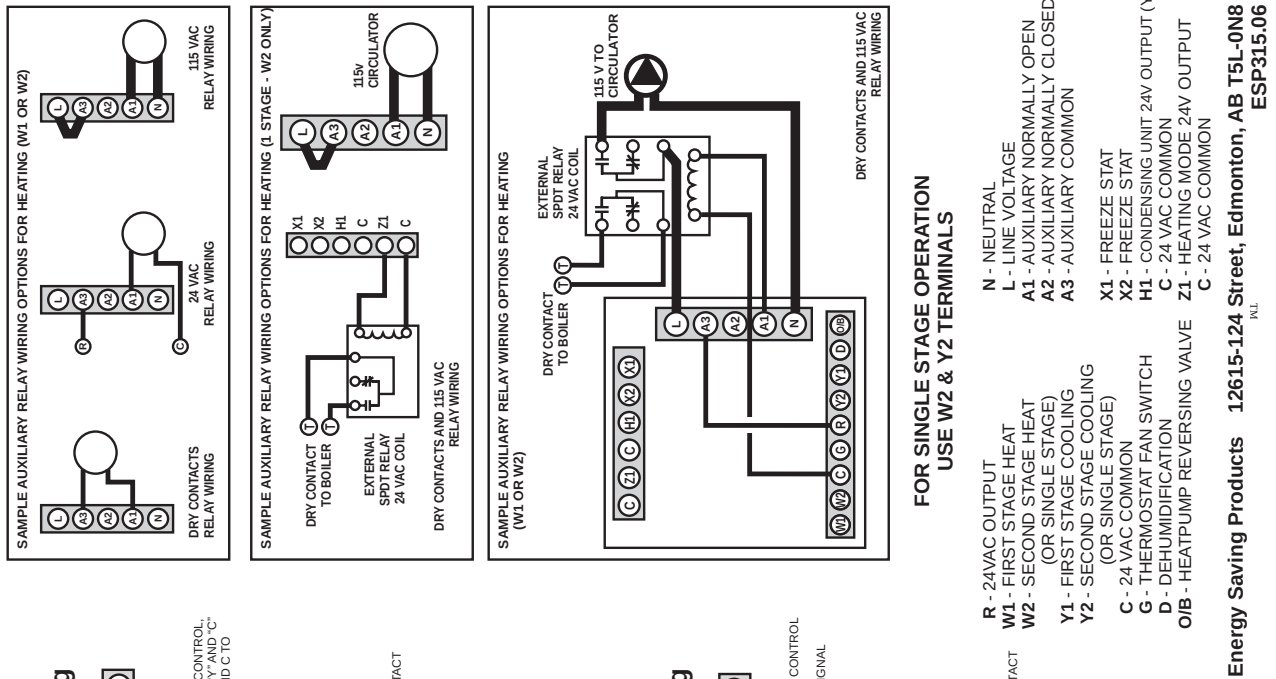
NOTES:

- 1) USE THERMOSTAT FAN SWITCH TO DISABLE/ENABLE CONTINUOUS FAN.
- 2) 'C' TERMINAL ON THERMOSTAT (COMMON) IS NOT NEEDED FOR SOME THERMOSTATS. CONSULT THERMOSTAT INSTRUCTIONS FOR DETAILS.
- 3) A3 (AUXILIARY RELAY COMMON) CAN BE USED WITH A1 AND/OR A2 AS DRY CONTACTS, ARMED 24v FROM THE 'R' TERMINAL, OR ARMED FROM THE 'L' TERMINAL.

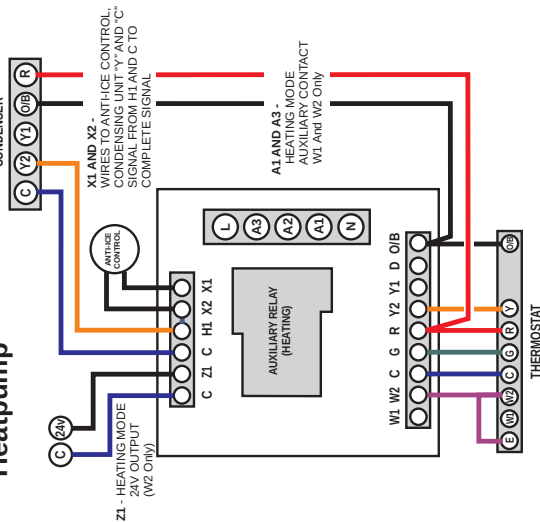
- 4) AUXILIARY RELAY TIMER ACTIVATES CIRCUIT FOR 5 MINUTES EVERY 24 HOURS STARTING WHEN POWER IS APPLIED TO THE UNIT. RED LIGHT IS ON WHEN AUXILIARY RELAY IS ACTIVATED.
- 5) SEE INSTALLATION MANUAL FOR MORE DETAILED WIRING DIAGRAMS AND DIP SWITCH SETTINGS.
- 6) FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

Extended Wiring Diagrams

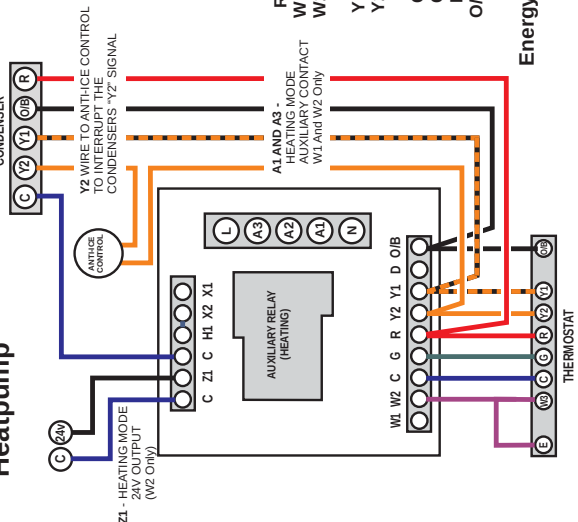
Extended wiring diagrams for the various applications the LV-E model can be used for. If you don't find the wiring configuration you require, please call the technical department at Energy Saving Products Ltd. for further assistance.



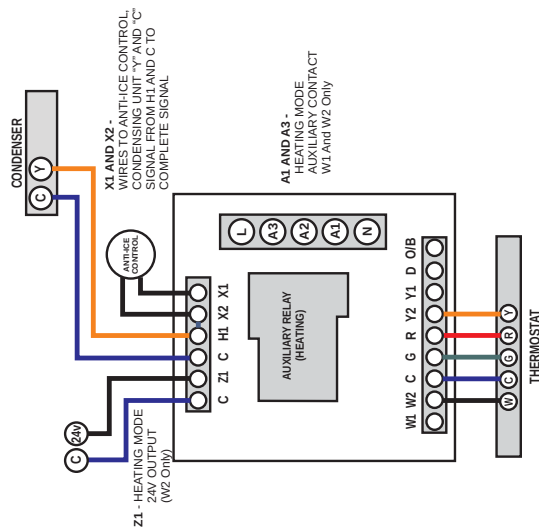
**1 Stage Cooling 2 Stage Heating
Heatpump**



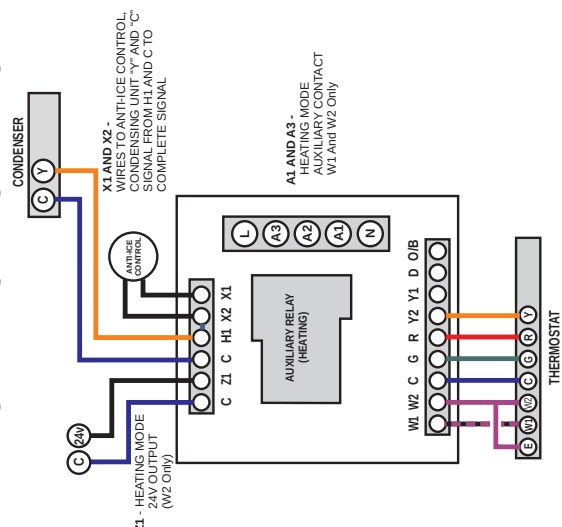
**2 Stage Cooling 3 Stage Heating
Heatpump**



1 Stage Cooling 1 Stage Heating



1 Stage Cooling 2 Stage Heating



LV-E Fan Coil - 24V Wiring Controls

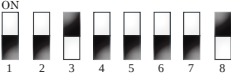
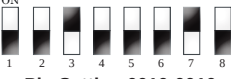
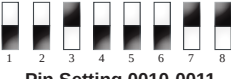
W1	W1 input to 1st (low stage) heat calls. Active when R is applied. Activates 1st stage heat fan and Auxiliary Relay. (W1 operates at 60% of W2 Fan Speed)
W2	W2 input to 2nd (high/primary stage) heat calls. Active when R is applied. Activates 2nd stage heat fan, Auxiliary Relay and 24V to Z1 (W2 operates at 320/280 CFM per ton, refer to dip setting)
C	24V supply common
G	G input for thermostat fan switch. Active when R is applied (G operates at 50% of Y2 Fan Speed)
R	24V supply
Y2	Y2 input to 2nd (high/primary stage) cooling or heat pump call. Active when R is applied. Activates 2 stage cooling fan speed, activates X1 with 24V for freeze stat and condenser connections (Y2 operates at 400/350 CFM per ton, refer to dip setting)
Y1	Y1 input to 1st (low stage) cooling or heat pump calls. Active when R is applied. Activates 1 stage cooling fan speed. (Y1 operates at 60% of Y2 Fan Speed)
D	24V input required from dehumidistat switch activates blower system to 320/280 CFM per ton from dip setting. Y2 must be activated from thermostat. (D operates at 320/280 CFM per ton, refer to dip setting)
O/B	Blind contact for condenser heat pump from thermostat
X1	24V Signal with calls from Y2, powers Freeze Stat
X2	Freeze Stat connection return signal
H1	24V Signal to Y on Condenser
C	Common for Condensing Unit
Z1	24V supply on W2 call
C	Common

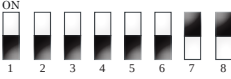
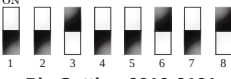
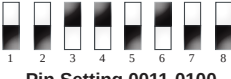
***Note:** X1 to X2 recommended to be wired to Freeze Stat (Anti-Ice Control)
If Freeze Stat is not used, a jumper between X1 to X2 must be installed to complete the H1 - 24V Signal to Y on Condenser (i.e. Chilled Water Systems)

EPC Circuit Board Pin Settings and Air Flow Data (Standard)

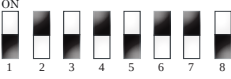
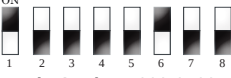
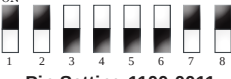
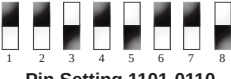
BLACK INDICATES DIP SWITCH POSITION. A heat loss/gain must be done prior to selecting an LV-E unit. Once an accurate heat loss/gain is completed, select the appropriate LV-E unit and the correct pin settings.

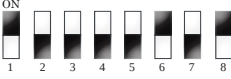
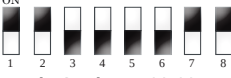
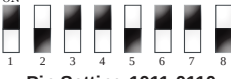
Model: LV-E 1050

Model: LV-E 1050	350 CFM/Ton	
Cooling: 1.5 Ton  Pin Setting 0010-0001	CFM	525
	Watts	110
Cooling: 2.0 Ton  Pin Setting 0010-0010	CFM	700
	Watts	185
Cooling: 2.5 Ton  Pin Setting 0010-0011	CFM	875
	Watts	245
Cooling: 3.0 Ton  Pin Setting 0110-0001	CFM	1050
	Watts	440

Model: LV-E 1050	400 CFM/Ton	
Cooling: 1.5 Ton  Pin Setting 0000-0011	CFM	600
	Watts	140
Cooling: 2.0 Ton  Pin Setting 0010-0101	CFM	800
	Watts	205
Cooling: 2.5 Ton  Pin Setting 0011-0100	CFM	1000
	Watts	290
Cooling: 3.0 Ton  Pin Setting 0111-0100	CFM	1200
	Watts	515

Model: LV-E 1750

Model: LV-E 1750	350 CFM/Ton	
Cooling: 3.0 Ton  Pin Setting 0101-0110	CFM	1050
	Watts	230
Cooling: 3.5 Ton  Pin Setting 1000-0100	CFM	1225
	Watts	310
Cooling: 4.0 Ton  Pin Setting 1100-0011	CFM	1400
	Watts	440
Cooling: 5.0 Ton  Pin Setting 1101-0110	CFM	1750
	Watts	695

Model: LV-E 1750	400 CFM/Ton	
Cooling: 3.0 Ton  Pin Setting 1000-0101	CFM	1200
	Watts	270
Cooling: 3.5 Ton  Pin Setting 1100-0011	CFM	1400
	Watts	440
Cooling: 4.0 Ton  Pin Setting 1011-0110	CFM	1600
	Watts	500
Cooling: 5.0 Ton  Pin Setting N/A	CFM	N/A
	Watts	N/A

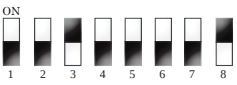
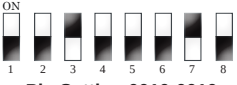
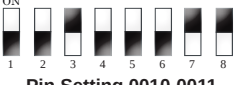
Black indicates dip switch position:

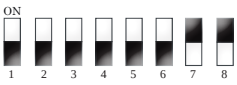
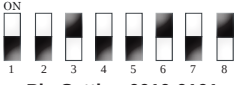


EPC Circuit Board Pin Settings and Air Flow Data (Metric)

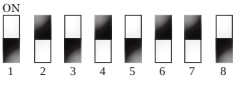
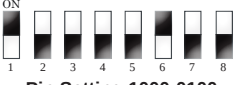
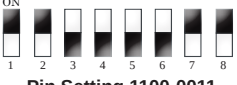
BLACK INDICATES DIP SWITCH POSITION. A heat loss/gain must be done prior to selecting an LV-E unit. Once an accurate heat loss/gain is completed, select the appropriate LV-E unit and the correct pin settings.

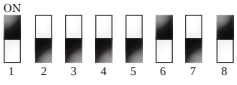
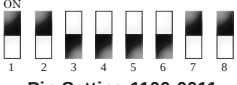
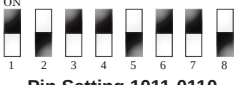
Model: LV-E 1050

Model: LV-E 1050	47 L/s per kW	
Cooling: 1.5 Ton	L/s	248
 Pin Setting 0010-0001	Watts	110
Cooling: 2.0 Ton	L/s	330
 Pin Setting 0010-0010	Watts	185
Cooling: 2.5 Ton	L/s	413
 Pin Setting 0010-0011	Watts	245
Cooling: 3.0 Ton	L/s	496
 Pin Setting 0110-0001	Watts	440

Model: LV-E 1050	54 L/s per kW	
Cooling: 1.5 Ton	L/s	283
 Pin Setting 0000-0011	Watts	140
Cooling: 2.0 Ton	L/s	378
 Pin Setting 0010-0101	Watts	205
Cooling: 2.5 Ton	L/s	472
 Pin Setting 0011-0100	Watts	290
Cooling: 3.0 Ton	L/s	566
 Pin Setting 0111-0100	Watts	515

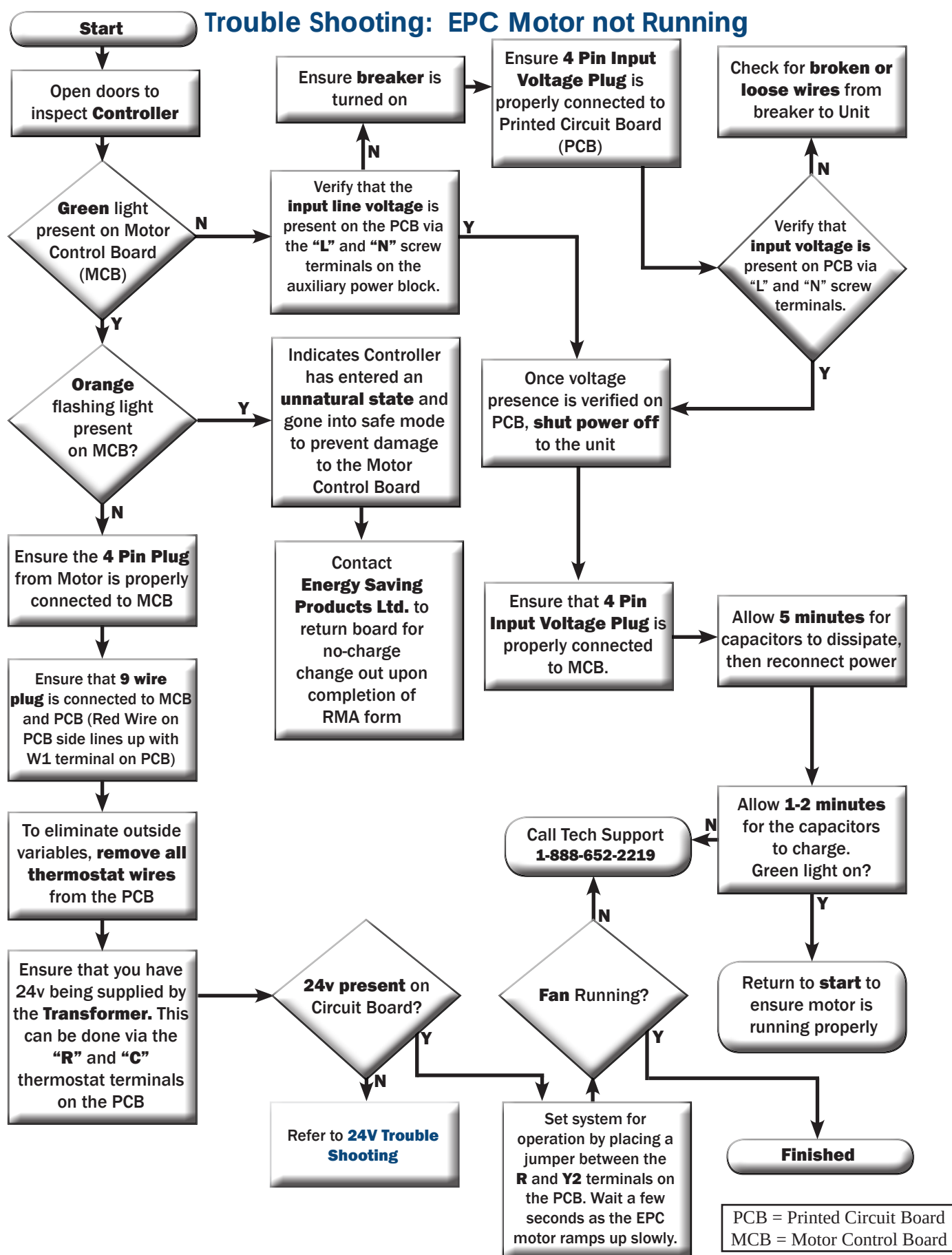
Model: LV-E 1750

Model: LV-E 1750	47 L/s per kW	
Cooling: 3.0 Ton	L/s	496
 Pin Setting 0101-0110	Watts	230
Cooling: 3.5 Ton	L/s	578
 Pin Setting 1000-0100	Watts	310
Cooling: 4.0 Ton	L/s	661
 Pin Setting 1100-0011	Watts	440
Cooling: 5.0 Ton	L/s	826
 Pin Setting 1101-0110	Watts	695

Model: LV-E 1750	54 L/s per kW	
Cooling: 3.0 Ton	L/s	566
 Pin Setting 1000-0101	Watts	270
Cooling: 3.5 Ton	L/s	660
 Pin Setting 1100-0011	Watts	440
Cooling: 4.0 Ton	L/s	755
 Pin Setting 1011-0110	Watts	500
Cooling: 5.0 Ton	L/s	N/A
 Pin Setting N/A	Watts	N/A

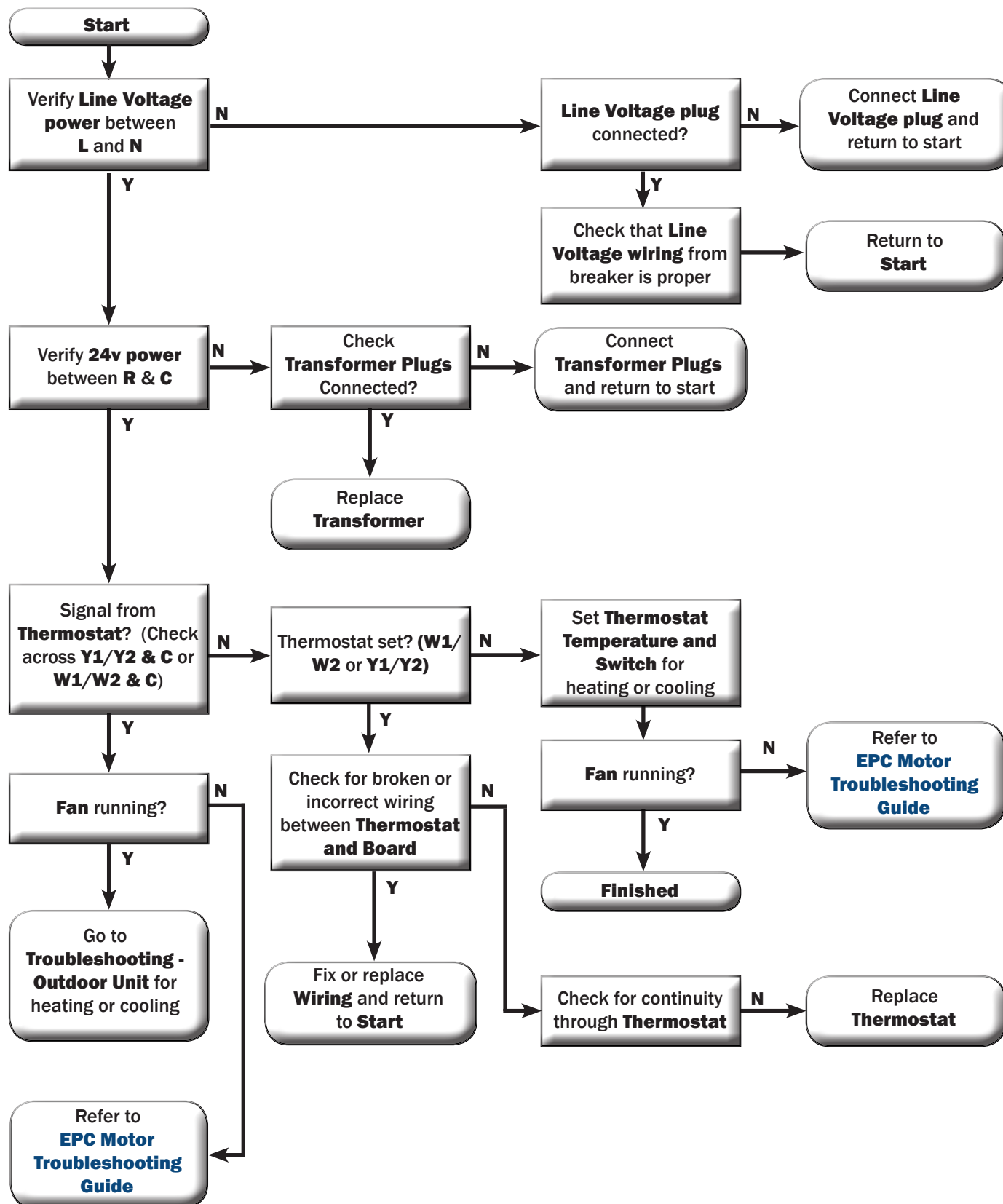
Black indicates dip switch position:



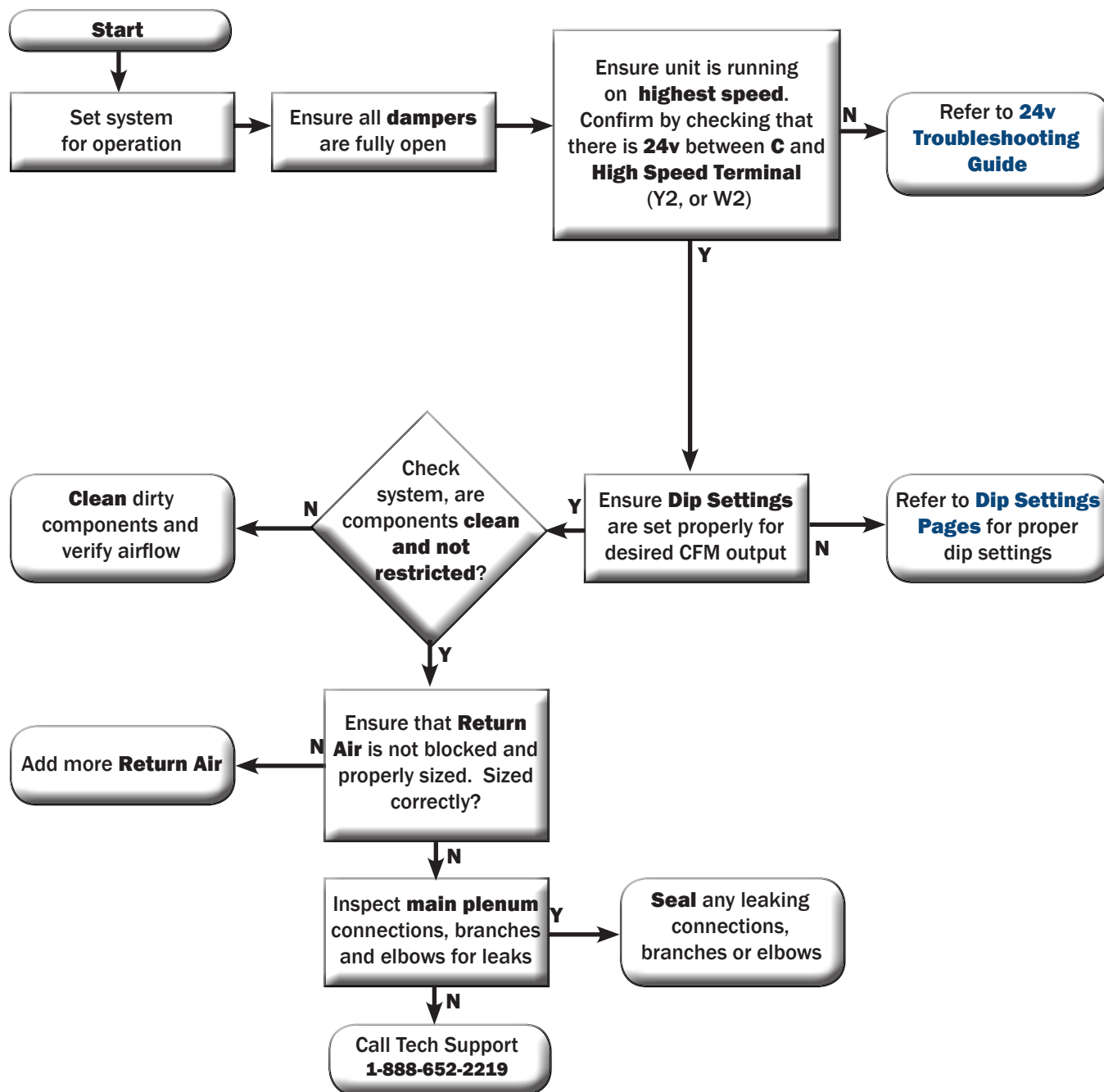


Trouble Shooting: 24 Volt

24v THERMOSTAT TO PCB

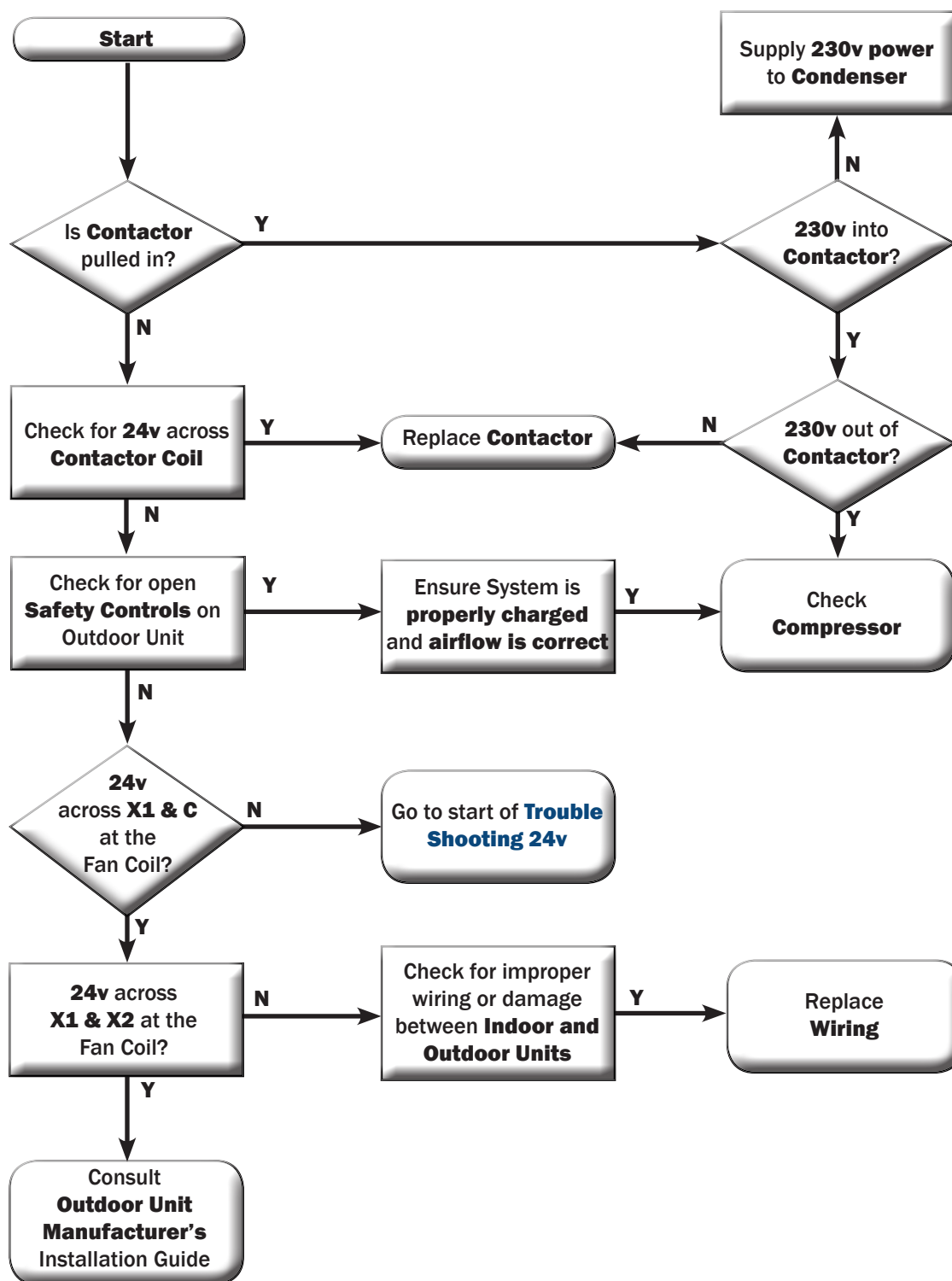


Trouble Shooting: Low Air Flow



PCB = Printed Circuit Board
MCB = Motor Control Board

Trouble Shooting: Outdoor Unit - Electrical



Matching Coils**Chilled Water Coils**

WCM-70/1050, WM-100/1050, WM-1750

Hot Water Coils

HWC-70/1050, HWC-1750

Electrical Coils

ESH-750 (5-18 Kw)

LV-E Series Specifications (Standard)

Hot Water Heating

Model	LV-E 1050				LV-E 1750		
Coil Type	70/1050	70/1050	70/1050* ¹	70/1050* ¹	1750	1750	1750
Tonnage	1.5	2	2.5	3	3.5	4	5
Max. BTUH @ 190° E.W.T	50,100	63,200	75,200	86,000	112,800	125,500	149,200
Max. BTUH @ 180° E.W.T	45,900	58,000	69,000	78,900	103,400	115,100	136,800
Max. BTUH @ 170° E.W.T	41,800	52,800	62,700	71,700	94,200	104,700	124,400
Max. BTUH @ 160° E.W.T	37,700	47,500	56,500	64,600	84,800	94,300	112,100
Max. BTUH @ 150° E.W.T	33,600	42,300	50,300	57,400	75,500	83,900	99,700
Max. BTUH @ 140° E.W.T	29,400	37,000	43,900	50,100	66,100	73,400	87,000
Max. BTUH @ 130° E.W.T	25,200	31,700	37,500	42,700	56,600	62,800	74,400
Max. BTUH @ 120° E.W.T	21,100	26,500	31,500	35,900	47,400	52,600	62,300
Max. BTUH @ 110° E.W.T	17,100	21,400	25,500	29,100	38,300	42,600	50,500
GPM Flow ratings	5	5	5	5	10	10	10
Pressure Drop FT. H ₂ O	3.9	3.9	3.9	3.9	3.1	3.1	3.1
CFM @ 68°F E.A.T.	420	560	700	840	980	1120	1400

Chilled Water Cooling

Model	LV-E 1050				LV-E 1750		
Coil Type	70/1050	70/1050	100/1050* ²	100/1050* ²	1750	1750	1750
E.W.T.							
Max. BTUH @ 48°F E.W.T.	20,200	23,800	31,500	34,900	46,700	50,400	56,200
Max. BTUH @ 46°F E.W.T.	22,000	25,800	34,200	37,900	50,700	54,600	60,900
Max. BTUH @ 44°F E.W.T.	23,700	27,800	37,000	40,800	55,000	58,800	65,500
Max. BTUH @ 42°F E.W.T.	25,400	29,900	39,600	43,800	58,300	62,900	70,000
Max. BTUH @ 40°F E.W.T.	27,000	31,800	42,200	46,600	62,100	66,900	74,500
S.H.R.							
Max. BTUH @ 48°F E.W.T. (%)	69	72	71	73	69	71	74
Max. BTUH @ 46°F E.W.T. (%)	67	70	68	70	67	68	71
Max. BTUH @ 44°F E.W.T. (%)	65	67	66	68	65	66	69
Max. BTUH @ 42°F E.W.T. (%)	63	66	65	66	64	65	67
Max. BTUH @ 40°F E.W.T. (%)	62	64	63	65	62	63	65
GPM Flow ratings	5	5	7	7	10	10	10
Pressure Drop FT. H ₂ O	4.5	4.5	4.5	4.5	3.6	3.6	3.6
CFM@80°F dB/67°F wB E.A.T.	525	700	875	1050	1225	1400	1750

Electrical Heating

Model		LV-E 1050		LV-E 1750	
Kilowatt Range		5 - 18 Kw		N/A	
Voltage		115/230/1/50/60 F.L.A. 8 amp			
Max Rated C.F.M.		1200		1750	
Horse Power/Watts		1/3 HP EPC - 515w		3/4 HP EPC - 695w	
R.P.M.		Variable		Variable	
Integral Surge and Fuse System		Yes		Yes	
Supply Air Size		15" X 16"		22.5" X 22.5"	
Return Size Needed		182 in ²		240 in ²	
Shipping Weight		95 lbs		125 lbs	
Fan Coil Size	Length	32.5"		39"	
	Width	19.5"		26.75"	
	Height	18.5"		24.25"	

*1 - WCM-100 will provide the same heating capacities at 7 GPM and 3.9 FT. H₂O

*2 - Use a full transition when using the WCM-100 to ensure even airflow across the coil. The WCM-70 is not to be used at these airflow rates.

Matching Coils**Chilled Water Coils**

WCM-70/1050, WM-100/1050, WM-1750

Hot Water Coils

HWC-70/1050, HWC-1750

Electrical Coils

ESH-750 (5-18 Kw)

LV-E Series Specifications (Metric)

Hot Water Heating

Model	LV-E 1050				LV-E 1750		
Coil Type	70/1050	70/1050	70/1050*1	70/1050*1	1750	1750	1750
kW	5.27	7.03	8.78	10.54	12.30	14.05	17.57
kW @ 88°C E.W.T.	14.67	18.51	22.02	25.18	33.03	36.75	43.69
kW @ 82°C E.W.T.	13.44	16.98	20.20	23.10	30.28	33.70	40.06
kW @ 77°C E.W.T.	12.24	15.46	18.36	20.99	27.58	30.66	36.43
kW @ 71°C E.W.T.	11.04	13.91	16.54	18.92	24.83	27.61	32.82
kW @ 66°C E.W.T.	9.84	12.39	14.73	16.81	22.11	24.57	29.19
kW @ 60°C E.W.T.	8.61	10.83	12.85	14.67	19.35	21.49	25.47
kW @ 54°C E.W.T.	7.38	9.28	10.98	12.50	16.57	18.39	21.79
kW @ 49°C E.W.T.	6.18	7.76	9.22	10.51	13.88	15.40	18.24
kW @ 43°C E.W.T.	5.01	6.27	7.47	8.52	11.21	12.47	14.79
L/s Flow ratings	.32	.32	.32	.32	.63	.63	.63
Pressure Drop (KPa)	.97	.97	.97	.97	.77	.77	.77
L/s @ 20°C E.A.T.	198	264	330	396	463	529	661

Chilled Water Cooling

Model	LV-E 1050				LV-E 1750		
Coil Type	70/1050	70/1050	100/1050*2	100/1050*2	1750	1750	1750
E.W.T.							
kW @ 8.9°C E.W.T.	5.91	6.97	9.22	10.22	13.67	14.76	16.46
kW @ 7.8°C E.W.T.	6.44	7.55	10.01	11.10	14.85	15.99	17.83
kW @ 6.7°C E.W.T.	6.94	8.14	10.83	11.95	16.10	17.22	19.18
kW @ 5.6°C E.W.T.	7.44	8.76	11.60	12.83	17.07	18.42	20.50
kW @ 4.4°C E.W.T.	7.91	9.31	12.36	13.64	18.18	19.59	21.81
S.H.R.							
kW @ 8.9°C E.W.T. (%)	69	72	71	73	69	71	74
kW @ 7.8°C E.W.T. (%)	67	70	68	70	67	68	71
kW @ 6.7°C E.W.T. (%)	65	67	66	68	65	66	69
kW @ 5.6°C E.W.T. (%)	63	66	65	66	64	65	67
kW @ 4.4°C E.W.T. (%)	62	64	63	65	62	63	65
L/s Flow ratings	0.32	0.32	0.44	0.44	0.63	0.63	0.63
Pressure Drop (KPa)	1.12	1.12	1.12	1.12	.90	.90	.90
L/s @ 27dB/ wB 19°C E.A.T.	248	330	413	496	578	661	826

Electrical Heating

Model	LV-E 1050		LV-E 1750
Kilowatt Range	5 - 18 Kw		N/A
Voltage	115/230/1/50/60 F.L.A. 8 amp		
Max Rated L/s	566		826
Horse Power/Watts	1/3 HP EPC - 515w		3/4 HP EPC - 695w
R.P.M.	Variable		Variable
Integral Surge and Fuse System	Yes		Yes
Supply Air Size	381mm X 406mm		572mm X 572mm
Return Size Needed	0.12m ²		0.15m ²
Shipping Weight	43 kg		57 kg
Fan Coil Size	Length	826mm	991mm
	Width	495mm	679mm
	Height	470mm	616mm

*1 - WCM-100 will provide the same heating capacities at 0.44L/s and 0.97 kPa

*2 - Use a full transition when using the WCM-100 to ensure even airflow across the coil. The WCM-70 is not to be used at these airflow rates.

WCM Coils

Water Cooling Module



High capacity coils:

Why let your water just sit around when it's not in use, using the hot or cold water you already have stored can save you money.

Primary and Secondary Drain Connections:

Connections are built into our modules which ensures the water always has an outlet to flow from.

Comes with:

The WCM/WM come supplied with two L mounting brackets for connection to the fan coil.

Specifications

		WCM - 70/1050	WM - 100/1050	WM - 1750
Part Number		10010201070	10010201100	20090101750
Fin Material		Aluminum	Aluminum	Aluminum
Tubing Material		Copper	Copper	Copper
Type of Fins		.006 Al	.006 Al	.006 Al
Flow Rate (GPM)		5	7	10
Hydronic Connection Sizes	Supply Line	3/4"	3/4"	1"
	Return Line	3/4"	3/4"	1"
	Drain Connection	3/4"	1/2"	1/2"
Pressure Drop FT. H ₂ O		4.5	3.9	3.6
Shipping Weight		35 lbs	40 lbs	52 lbs
Module Size	Length	19 3/8"	25 3/8"	26 1/4"
	Width	10 1/8"	7"	8"
	Height	18 1/2"	18 3/8"	22 5/8"
Matching Fan Coil		LV-E 1050	LV-E 1050	LV-E 1750
BTUH		23,700-27,800	37,000-40,800	55,000-58,800

Hot Water Coils

HWC Add-Ons

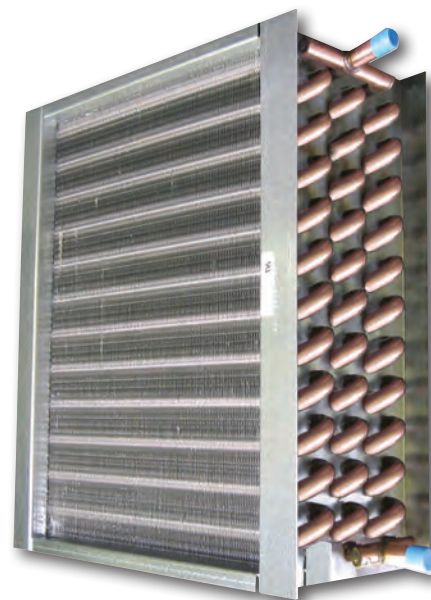
The Hot water coil:

Is easily installed in the LV-E System. With heating, condensate is not a consideration and the coil can be mounted on the supply side of the blower.

With the removal of the front coil access panel, the coil can be quickly and easily slid in place on the supply side of the blower.

The 6 row coil:

Is our standard coil that comes in every H model, if you would like to upgrade a BU model to heating, these coils simply slide into place.



Specifications

HWC-70/1050

HWC-1750

Matching Fan Coil		LV-E 1050	LV-E 1750
Coil Type		6 Row/10 FPI	6 Row/10 FPI
Part Number		20100100070	20100101750
Fin Material		Aluminum	Aluminum
Tubing Material		Copper	Copper
Type of Fins		.006 Al	.006 Al
Flow Rate (GPM)		5	10
Hydronic Connection	Supply	3/4"	1"
Sizes	Return	3/4"	1"
Pressure Drop FT. H ₂ O		3.9	3.1
Coil Height		19"	26"
Coil Length		16"	22"
Shipping Weight		21 lbs	45 lbs
BTUH		37,700-64,600	84,800-112,100

ESH Coils

Electric Strip Heater

Electric Resistance Heaters:

Can be used with the Hi-Velocity Systems™ LV-E model and are easily installed in the system.



Easily installed :

With the design of the LV-E System, the electric heaters can be easily installed in the fan coil at a later date by simply removing the coil access panel and sliding it in place.

TH-34 Electronic Sequencer:

On a demand for heat, the TH-34 electronic sequencer will energize the heating elements in sequence. When the thermostat is satisfied all the elements will be de-energized.

Kilowatts	Number of Feeders	Circuit Breakers
5	1 x 20.8	1 x 30A
10	1 x 41.6	1 x 60A
15	1 x 20.8 1 x 41.6	1 x 30A 1 x 60A
18	1 x 41.6 1 x 41.6	1 x 60A 1 x 60A
20	2 x 41.6	2 x 60A

Specifications

ESH - 750

Part Number		5kw - 10025750005
		10kw - 10025750010
		15kw - 10025750015
		18kw - 10025750018
Volts		240
Phase		1
Shipping Weight (lbs)		27
Module Size	Length	24"
	Width	13"
	Height	18"
Matching Fan Coil		LV-E 1050*
Tons		1.5 - 3.0

*The Electric Strip Coil is not yet available for the LV-E 1750



The **Hi-Velocity** Air Purification System

*Designed specifically for use with the **Hi-Velocity** product lines, giving consumers unsurpassed indoor air quality.*

Three Powerful Technologies in One Air Purification System

- **Electrostatic MERV-11* Filter Removes Allergens Electrostatically:**

So small that they can only be seen with a microscope. Pollen, mold, fungal spores, dust mites, cockroach dust, tobacco smoke and bacteria are but a few examples.

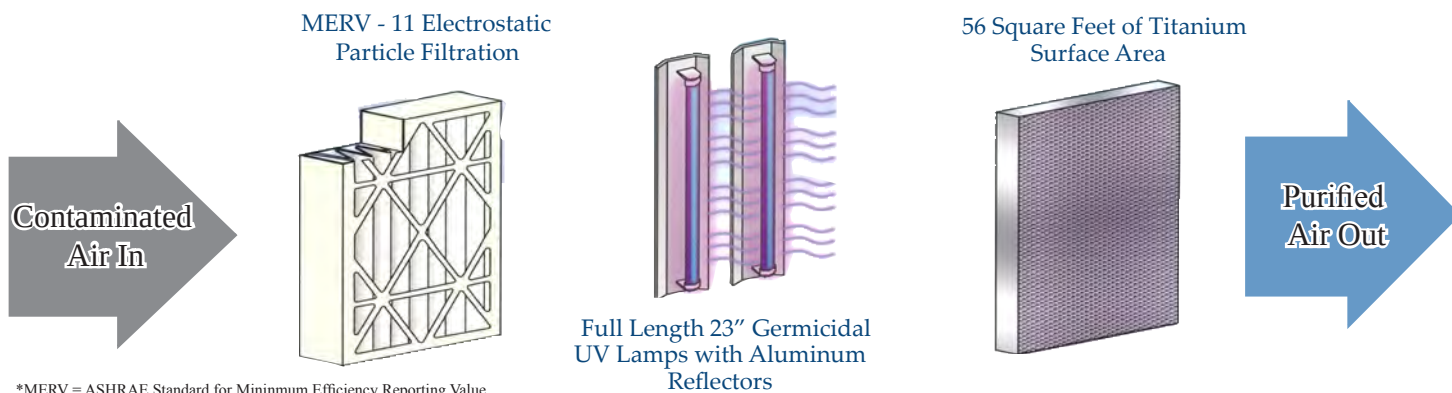
- **“Photo-Catalytic Oxidation” Destroys Toxic Chemicals and Eliminates Household Odors:**

Activated carbon, zeolite and potassium permanganate used by the best air purifiers can rapidly absorb large quantities of toxic fumes, however this media quickly becomes saturated and slowly releases pollutants back into the air stream. Photo-Catalytic Oxidation converts toxic compounds, even carbon monoxide and nitrous oxide, into benign constituents such as carbon dioxide and water without wearing out or losing its effectiveness.

- **Ultraviolet Light Kills Disease Germs on Contact**

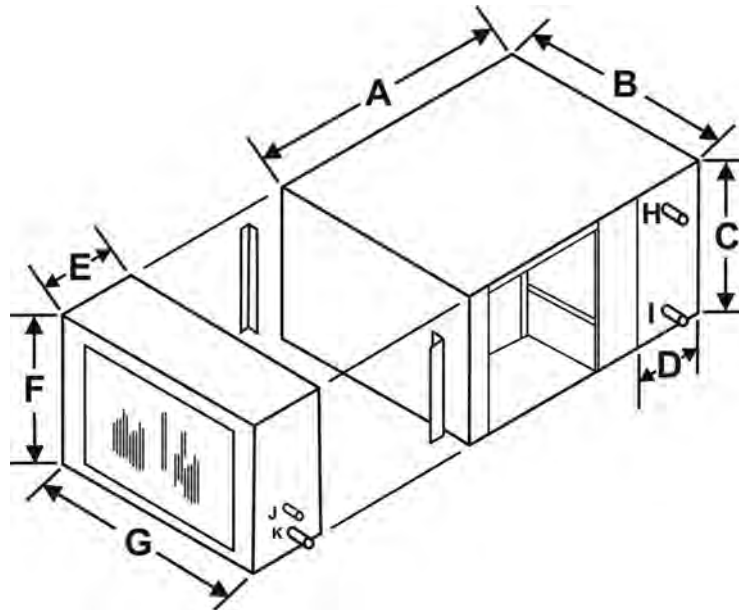
Ultraviolet light 10,000 times the intensity of sun light kills viruses and bacteria too small to be filtered out by a Hepa filter. Ultraviolet technology combined with photo-catalytic oxidation is the most important feature in air purification since germs are easily spread from one person to another by central heating and air-conditioning systems.

Model	HE PS	HE PS-1750
Dimensions	25 ^{3/4} " X 17 ^{3/4} " X 10"	25" X 21" X 10 ^{1/8} "
Weight	25 Lbs	28 Lbs
Shipping Box	7.5 Lbs	8 Lbs
Power	120v/60Hz/54 watts/1.1 amps	
Fuse	AGC 2 amps	
Service Panel	12 vac.	
UV Lamps	(2) ESP LT 016	
Titanium Catalyst	12,220 cells/4,583 Sq. In of Surface Area	31,080 cells/10,080 Sq. In of Surface Area
Service Interval	Replace Filter every 6 Months, UV Lamps every 12 Months	
Filter ESP FI018	16" X 25" X 4" MERV-11 Electrostatic Needled Fiber Media	19 ^{1/2} " X 24 ^{1/2} " X 3 ^{3/4} " MERV-11 Electrostatic Needled Fiber Media



*MERV = ASHRAE Standard for Minimum Efficiency Reporting Value

Quick Sizing Guide



Item	Length	Width	Height
Fan coils	A	B	C
LV-E 1050	32.5" (826mm)	19.5" (495mm)	18.5" (470mm)
LV-E 1750	39" (991mm)	26 3/4" (679mm)	24 1/4" (616mm)

Water Cooling Modules	G	E	F	J	K
WCM-70	19 3/8" (492mm)	10 1/8" (257mm)	18 1/2" (470mm)	3/4" (19mm)	3/4" (19mm)
WM-100	25 3/8" (645mm)	7" (178mm)	18 3/8" (467mm)	3/4" (19mm)	3/4" (19mm)
WM-1750	26 1/4" (667mm)	8" (203mm)	22 5/8" (575mm)	1 1/8" (29mm)	1 1/8" (29mm)

Hot Water Coils (6 Row)	B	D	C	H	I
LV-E 1050	19" (483mm)	5 1/2" (140mm)	16" (406mm)	3/4" (19mm)	3/4" (19mm)
LV-E 1750	26" (660mm)	5 1/2" (140mm)	22" (559mm)	1 3/4" (44mm)	3/4" (19mm)

Heating Coil Add-on does not come as a module, it slides into the Hi-Velocity fan coil

Electrical Strip Heater	B	D	C
HV-750	18 3/4" (476mm)	5 5/8" (143mm)	15 1/2" (394mm)

Dimensions for the ESH do not include the electrical access panel, add 4" to ESH for Total Length

Hi-Velocity Air Pur. Syst.	B	D	C
HE PS c/w Merv 11 Filt.	25" (635mm)	17" (432mm)	10" (254mm)
HE PS-1750	32" (813mm)	23" (584mm)	14" (356mm)

WARRANTY

One year limited warranty. The heat exchanger and blower are free from defects in workmanship for one year from date of purchase.

Three year limited warranty. The EPC Motor, EPC Controller and EPC Circuit Board are free from defects in workmanship for three years from date of purchase.

Two year limited warranty. The electrical strip heater is free from defects in workmanship for two years from date of purchase

This warranty applies only to the fan coil unit and does not include connections, attachments, and other products or materials furnished by the installer. This warranty applies only to the first purchaser at retail and excludes any damages caused by changes, relocation to, or installation in a new site. This warranty does not cover any defects caused by failure to follow the installation and operating instructions furnished with the fan coil, local building codes, and good industry standards. Failure to correctly install the fan coil, or material related to the unit, may result in improper system performance and/or damages and will void this warranty.

TERMS AND CONDITIONS

- Any repair performed under warranty must be approved by Energy Saving Products Ltd. for this warranty to be valid.
- The manufacturer is not liable for any other damages, personal injury, or any other losses of any nature.
- The liability of the manufacturer is limited to and shall not exceed the cost of replacement parts and shall not include transportation to and from the factory, and field labour.
- Inoperative parts must be returned with serial number, purchase date, and a detailed description of the entire problem with an ESP RMA Form.
- This warranty replaces all other warranties expressed or implied.



EDMONTON, ALBERTA, CANADA T5M 2T9
PHONE (780) 453-2093 FAX (780) 453-1932
TOLL FREE 1-888-652-2219
www.hi-velocity.com

Energy Saving Products Ltd., established in 1983, manufactures the Hi-Velocity Systems™ product line for residential, commercial and multi-family markets. Our facilities house Administration, Sales, Design, Manufacturing, as well as Research & Development complete with an in-house test lab. Energy Saving Products prides itself on Customer Service and provides design services and contractor support.



Build Smart, Breathe *Easy*

Hi-Velocity LV-E Fan Coils, **Green** Technology



Phone: 780-453-2093
Fax: 780-453-1932
Toll Free: 1-888-652-2219



www.hi-velocity.com